

**REMARKS/ARGUMENTS**

Petition is hereby made under the provisions of 37 CFR 1.136(a) for an extension of three months of the period for response to the Office Action. The enclosed cheque includes the prescribed fee.

In the Office Action, the Examiner acknowledges applicants claim to priority under 35 USC 119 but indicated that no certified copy had been received. It is submitted that a further certified copy of GB 9403245.5 is not necessary for priority to be accorded.

This application is a continuation-in-part of United States Patent application No. 08/696,880 which was a 35 USC 371 filing of PCT/CA95/00082. A certified copy of GB 9403245.5 was submitted to WIPO in connection with the PCT filing. Accordingly, all formalities with respect to priority under 35 USC 119 have been met.

This opportunity has been taken to update the reference to the parent application, as requested by the Examiner.

The Examiner withdrew claims 1 to 11 and 16 to 31 from further consideration in view of applicants election of claims 12 to 15, which are pending.

The Examiner considered the title not descriptive. The title has been amended consistent with the subject matter of claims 12 to 15.

With respect to page 12, line 3, the semi-conductor, Hall effect crystal is embedded towards the tip of a blade-shaped probe constructed of aluminium or plastic.

As requested, the specification has been checked for errors. It has been found that references to "hydrazine" should be to "hydrazine sulfate" on page 15 and this correction has been made.

The Examiner rejected claims 12 to 15 under 35 USC 112, first paragraph, as containing subject matter which is not described in the specification in such a way as to enable one skilled in the art to which it pertains or with which it is most nearly connected, to make and/or use the invention.

Claims 12 to 15 are directed to a method of detecting a chemical substance which may be concealed (claim 13) or remotely located (claim 15). The concealed substance may be an explosive, radioactive isotope or chemically active organic matter (claim 14).

As explained in the specification, photon emission is the consequence of intraatomic interactions of all types, including electronic, vibrational and rotational, and the magnetometer is sensitive to the magnetic component common to photons of all frequencies. Claim 12 claims a method in which fluctuation in spontaneous intraatomic and nuclear quantum states of chemical substance are detected as an identification of the substance.

As the Examiner observes, the apparatus used in the method is shown in Figures 1a and 1b and is described on pages 11 to 20. The manner of utilization of the instrumentation to detect chemical substances is described, for example, on page 18 line 21 to page 20, line 16. Examples II and III specifically describe application of the present invention to hydrazine sulfate and potassium perchlorate.

Having regard to the above discussion, it is submitted that claims 12 to 15 are fully enabled and hence the rejection thereof under 35 USC 112, first paragraph, should be withdrawn.

The Examiner rejected claims 12 to 15 under 35 USC 101 on the basis that the disclosed invention is inoperative and lacks utility.

Having regard to the discussion above with respect to the rejection under 35 USC 112, first paragraph, and having regard to the specific working

Examples, it is submitted that the claims clearly possess utility and hence the rejection of claims 12 to 15 under 35 USC 101 should be withdrawn.

The Examiner rejected claims 12 to 15 under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

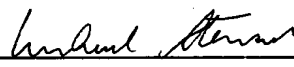
As explained above, the detection of fluctuation is spontaneous intraatomic and nuclear quantum states is carried out using a Hall effect magnetometer and visualized graphically, as described in the specific working Examples. The detection may be effected adjacent to the substance or remote from the substance, The fluctuations are manifest in the visualized graphical representation. The term "chemical substance" has its ordinary meaning in the art.

Having regard to the above, it is submitted that claims 12 to 15 cannot be considered indefinite and hence the rejection thereof under 35 USC 112, second paragraph, should be withdrawn.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned **"Version with markings to show changes made."**

It is believed that this application is now in condition for allowance and early and favourable consideration and allowance are respectfully solicited.

Respectfully submitted,

  
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Appl. No. 09/493,686

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**In the Title:**

Amend the title to read:

"DETECTION OF PROPAGATING ELECTROMAGNETIC WAVES BY  
MAGNETOMETRY"

**In the Specification:**

Paragraph beginning at line 11 of page 1 has been amended as follows:

This application is a continuation-in-part of United States Patent Application No. 08/696,880 (Now USP 6,150,812) effectively filed February 20, 1995 as a 35 USC 371 filing of PCT/CA95/00082 filed February 20, 1995.

Paragraph beginning at line 22 of page 15 has been amended as follows:

One practical application of the ability of the invention to detect spontaneous emission of microwave energy from matter and thereby the presence of chemicals at a distance in their ground state at room temperature, is described below. The substance chosen for investigation was hydrazine sulfate, a reactive nitrogenous compound known to be an environmental and workplace hazard implicated in tissue toxicity and carcinogenesis (refs. Wi76, Do80, FO86). The chemical instability of hydrazine sulfate presents explosive hazards in its legitimate use as a rocket fuel (ref. Wi76) while the same properties have raised fears that hydrazine sulfate might be added to terrorist armamentaria. Detection and identification of hydrazine sulfate and its derivatives in ambient air at low levels has proven difficult (ref. FO86).